Quick start GEOSgcm run

If you want to run the GEOS-5 AGCM on NAS or NCCS systems (COLUMBIA or DISCOVER) this quick start guide may be all that you need.

First define the location of BASEDIR for your environment:

DISCOVER:

```
setenv BASEDIR
/usr/local/other/baselibs/ESMF220rp2_NetCDF362b6_9.1.052
```

COLUMBIA:

```
setenv BASEDIR
/u/trayanov/baselibs/v2_2rp2
```

then:

```
setenv LD_LIBRARY_PATH $
{LD_LIBRARY_PATH
}:$
{BASEDIR
}/Linux/lib
setenv GEOSUTIL $NOBACKUP/GEOSagcm/src/GMAO_Shared/GEOS_Util
cd $NOBACKUP
```

Note: $NOBACKUP is a global environment variable defined on NCCS systems. On NAS systems use some other appropriate path, e.g. $HOME.

Now check-out a copy of the code from the CVS repository at SourceMotel:

```
cvs -d
sourcemotel.gsfc.nasa.gov:/cvsroot/esma co -r GEOSagcm-Eros_7_24
GEOSagcm
```

Note usage of CVS tag **GEOSagcm-Eros_7_24** (for more information see GEOS-5 GCM revision history).

If you're working on DISCOVER, you may need to update the **g5_modules** file. Please see Impact of DISCOVER upgrade on GEOS-5 build for details.

```
cd GEOSagcm/src/
gmake install ESMADIR=$NOBACKUP/GEOSagcm > & install.log
&
```

It should take 20-25 minutes to build. If you find an error in the install.log, try the gmake command a second time (without doing "gmake clean" first).

```
mkdir $NOBACKUP/exp1
cd $NOBACKUP/exp1
ln -s $NOBACKUP/GEOSagcm/Linux/bin/GEOSgcm.x .
```

Note: a successful installation will create a GEOSgcm.x executable file on $NOBACKUP/GEOSagcm/Linux/bin. For more information refer to the GEOS-5 AGCM User's Guide section on Building and Installing the GEOS-5 AGCM.

Now get the initial conditions (restart) data and pre-configured resource (Chemistry RC) files [1]:

DISCOVER:

```
cp
/discover/nobackup/projects/map/GEOS-5.0_restarts/GEOSagcm-Eros_7_22/144x91
/* .
```

COLUMBIA:

```
cp
/nobackup/ccruz/GEOS-5.0_restarts/GEOSagcm-Eros_7_22/144x91
/* .
```

then:

```
cd
$NOBACKUP/GEOSagcm/src/Applications/GEOSgcm_App
```

Now generate a script to run the GCM execute gcm_setup:

```
./gcm_setup
```

and enter the following responses:

```
Enter the Experiment ID:
expMERRA
Enter a 1-line Experiment Description:
GCM MERRA run
Enter the Model Resolution: IM JM
144 91

Enter Desired Location for Experiment Home Directory (to contain
run scripts and rc files):
  Hit RETURN  to use Default Location: /home/ccruz/geos5/expMERRA

Enter path for GEOS_Util Installation to use (for post-processing
and plots):
  Hit RETURN to use Default Location:
$NOBACKUP/GEOSagcm/src/GMAO_Shared/GEOS_Util

Enter your GROUP ID: (Default: k3002)
```

Replace $NOBACKUP with the actual path, and make sure you use your appropriate GROUP ID. Ignore the final few lines of instructions about copying files, as this has already been done in earlier steps. Next:

```
qsub
$HOME/geos5/expMERRA/gcm_run.j
```

This will launch 32 processes with 4 processes per node. To see the status of your job, issue the following command:

% qstat -a

Monitoring currently running jobs (stderr/stdout) on DISCOVER.

/discover/pbs_spool is a 200 GB GPFS filesystem that is a globally visible spool dir. The local spool directory on all compute nodes is now a sym-link that point to this global spool dir. You should be able to monitor job err/output by going to this directory and finding the appropriate files by their jobids. As with the SGIs, users should not edit or remove any files in this directory or unpredictable things may happen. The intermediate output files have names such as <job-number>.<node-of-submission>.OU, for example:

```
userid@discover01:/discover/pbs_spool>
ls
1008.borgmg.OU  1224.borgmg.OU  1249.borgmg.OU
1390.borgmg.OU  1628.borgmg.OU
1036.borgmg.OU  1225.borgmg.OU  1256.borgmg.OU
1396.borgmg.OU  1705.borgmg.OU
```

Please note: this filesystem is not set up for I/O performance or for handling large stderr/stdout files. It is expected that small amounts of text-only output will be written here (and moved back to submission directories at the conclusion of a job. If users have large text I/O requirements, they should be writing directly to a file on /nobackup/<userid>/* and not using stdout.

Any non-PBS files that show up in this directory are subject to deletion at any time and without warning. This filesystem is for PBS spool use only.

If PBS cannot place a stderr/stdout file where it thinks it should go, then it will place the file in /discover/pbs_spool/undelivered

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[1] Alternatively you can obtain a self-contained data set that includes code, restarts, BCs and a run.script from the MAP GEOS-5 software page.

Next: Building and Installing the GEOS-5 AGCM

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